

WHAT IS CLAIMED IS:

- 1 1. A method of updating parity data in a redundant array of independent disk
2 (RAID) clustered environment comprising:
 - 3 (a) locking parity data, without communicating with other nodes, for data
4 managed in SCSI (small computer systems interface) disks in a RAID clustered system,
5 wherein the locking prevents other nodes from modifying the parity;
 - 6 (b) reading the parity data;
 - 7 (c) generating new parity data by exclusive oring data from a first node and a
8 second node;
 - 9 (d) writing the parity data to a SCSI disk in the RAID system; and
10 (e) unlocking the parity data.
- 1 2. The method of claim 1, wherein the locking comprises issuing a RESERVE
2 command.
- 1 3. The method of claim 1, wherein the unlocking comprises issuing a RELEASE
2 command.
- 1 4. The method of claim 1, wherein the locking and reading steps are combined.
- 1 5. The method of claim 1, wherein the writing and unlocking steps are
2 combined.
- 1 6. The method of claim 1 wherein the RAID system is RAID-4.

1 7. The method of claim 1 wherein the RAID system is RAID-5.

1 8. The method of claim 1 wherein the RAID system is RAID-6.

1 9. An apparatus for updating parity data in a redundant array of independent
2 disk (RAID) clustered environment comprising:

3 (a) a plurality of SCSI (small computer systems interface) storage devices
4 organized in a RAID clustered system;

5 (b) data stored in the plurality of SCSI storage devices;

6 (b) a first node, operatively coupled to the SCSI storage devices, that manages
7 storage and retrieval of the data in the data storage devices, wherein the first node is
8 configured to:

9 (i) lock parity data without communicating with other nodes, wherein
10 the lock prevents other nodes from modifying the parity;

11 (ii) read the parity data;

12 (iii) generate new parity data by exclusive oring data from two nodes;

13 (iv) write the parity data to a SCSI disk in the RAID system; and

14 (v) unlock the parity data.

1 10. The apparatus of claim 9, wherein the first node locks the parity data by
2 issuing a RESERVE command.

1 11. The apparatus of claim 9, wherein the first node unlocks the parity data by
2 issuing a RELEASE command.

1 12. The apparatus of claim 9, wherein the first node is further configured to
2 combine the logic for locking and reading.

1 13. The apparatus of claim 9, wherein the first node is further configured to
2 combine the logic for writing and unlocking.

1 14. The apparatus of claim 9 wherein the RAID system is RAID-4.

1 15. The apparatus of claim 9 wherein the RAID system is RAID-5.

1 16. The apparatus of claim 9 wherein the RAID system is RAID-6.

1 17. An article of manufacture, embodying logic to perform method steps of
2 updating parity data in a redundant array of independent disk (RAID) clustered
3 environment, the method steps comprising the steps of:

4 (a) locking parity data without communicating with other nodes, wherein the
5 locking prevents other nodes from modifying the parity;

6 (b) reading the parity data;

7 (c) generating new parity data by exclusive oring data from two nodes;

8 (d) writing the parity data to a SCSI (small computer systems interface) disk in
9 the RAID system; and

10 (e) unlocking the parity data.

1 18. The article of manufacture of claim 17, wherein the locking comprises
2 issuing a RESERVE command.

1 19. The article of manufacture of claim 17, wherein the unlocking comprises
2 issuing a RELEASE command.

1 20. The article of manufacture of claim 17, wherein the locking and reading steps
2 are combined.

1 21. The article of manufacture of claim 17, wherein the writing and unlocking
2 steps are combined.

1 22. The article of manufacture of claim 17 wherein the RAID system is RAID-4.

1 23. The article of manufacture of claim 17 wherein the RAID system is RAID-5.

1 24. The article of manufacture of claim 17 wherein the RAID system is RAID-6.